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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,329

03/27/2007

Van-Khoi Vu

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6769

86879

7590

08/17/2011

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EXAMINER

SINGH, PREM C

ART UNIT

PAPER NUMBER

1771

NOTIFICATION DATE

DELIVERY MODE

08/17/2011

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b> 10/563,329	<b>Applicant(s)</b> VU, VAN-KHOI	
	<b>Examiner</b> PREM C. SINGH	<b>Art Unit</b> 1771	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25,27,29,33-35 and 39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25,27,29,33-35 and 39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>02/24/2006</u>  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

1. Applicant's remarks filed: 05/05/2011 in response to the restriction requirements of the Office action dated: 04/05/2011 are persuasive and therefore, apparatus claims 15-25 and 27 have been joined with the process claims 1-14 and 28-40.

### ***Drawings***

2. The drawings are objected to because figure 1 should be marked as "Prior Art" and figures 5 and 6 are not of sufficient quality for reproduction.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

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the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claim 8 is objected to because of the following informalities:

Claim 8 (lines 1-2): reciting, "...which comprises using a water leg comprises from 3 to 15 meters" should be re-worded.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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5. Claims 1-25, 27, 29, 33-35 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (figure 1) (as per specification, page 3, lines 10, 22-36; page 4, and page 5, lines 1-18) ("Prior Art") in view of Canadian Patent 915 589 ("Canadian Patent") and Brown et al (US Patent 2,730,190) ("Brown").

6. With respect to claims 1-25, 27, 29, 33-35 and 39, the Prior Art discloses a process and the setup of figure 1, situated at the top side of the ship, having 2-3 stages (See Prior Art, figure 1). A crude oil containing an oil phase in emulsion with an aqueous phase and a gas phase arrives at the first separator [2] separating gas from emulsion (See Prior Art, specification, page 3, lines 22-33). Prior Art also discloses that the residence time in the first separator is often more than 5 minutes and temperature 60-90°C (See prior art, page 3, lines 33-34; page 4, lines 4-5). Prior Art further discloses that the gas leaves by conduit [5], water by conduit [4] and oil by conduit [6] towards a further separation unit (See prior art, specification, page 4, lines 19-22).

Prior Art does not appear to specifically disclose that stage (a) comprises a high pressure and low pressure separation; and stage (b) is implemented without recovery of a flow from the emulsion interface. Prior Art also does not specifically disclose washing the emulsion with water, stripping with gas and settling the oil.

Canadian Patent discloses a process and setup for the separation of water and gas from oil in oil well streams (See figure 1; page 1, lines 1-2) similar to the Prior Art. Canadian Patent also discloses stage (a) comprising a high pressure separation and a low pressure separation of gases from oil/water (See page 8, lines 8-15). Canadian

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Patent further discloses separation of gas and settling water and oil and then separating water and oil into separate phases (See claim 1). Canadian Patent also discloses that a valve V2 is controlled by a level controller L2 which senses the level of the junction of the free water and the oil/water emulsion and acts to maintain this level at a desired height (See page 4, lines 23-26; page 5, lines 28-32). This indicates that the Canadian Patent is implementing stage (b) without recovery of a flow from the emulsion phase as claimed. Canadian Patent also discloses longer retention time of liquids in compartments 5, 6, 7 to produce better separation of oil and water (See page 7, lines 19-28). This indicates that Canadian Patent is expected to be using retention time in stage (b) in an appropriate range including as claimed. Canadian Patent further discloses that the upper portion 8 can be removed when transporting the apparatus and various pipes of the apparatus are located within the vessel 2 to minimize the risk of freezing (See page 7, lines 30-33; page 8, lines 16-21).

In view of prior art teaching components being on the topside of the ship, and Canadian Patent teaching that the upper portion 8 can be removed and various pipes of the apparatus are located within the vessel, it would have been obvious to one with ordinary skill in the art at the time of invention to modify the teaching in the Prior Art and install the gas separator [1] at the topside while the vessel [2] in the hull of the ship.

Brown discloses a process and apparatus for the treatment of crude oil containing water and gas (See figure 1; column 2, lines 9-14, 50-52) similar to the Prior Art. Brown also discloses washing the emulsion with water at the gas/oil/water interface and passing the emulsion to the lower portion of the washing vessel [40] (See figure 1;

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column 2, lines 47-52; column 4, lines 40-46, 64-68; column 5, lines 73-75; column 6, lines 1-4, 23-28). Brown also discloses contacting of the liquid phase with a stream of finely dispersed gas bubbles produced by means of a jet flotation device causing a partial stratification leaving a residual partially purified water stream thereby washing the liberated oil substantially free of emulsion and solids (See figure 1, 5; column 2, lines 47-62). It is to be noted that the contacting of the liquid phase with a stream of finely dispersed gas bubbles is a stripping process. Brown discloses using different crudes (which appear to include complex crudes) with water content from 90% to 10-12% water after degassing and washing (See Example 1 column 12). This indicates that Brown is expected to achieve water content of the degassed emulsion in the claimed range. Brown is also using a wash column [40] (See figure 1) with 15 ft diameter and 24 ft height (See Example 1) indicating that the water leg is in a range as claimed. Brown also discloses wash column [40] with a water distribution system [68] (See figure 1; column 5, lines 19-72).

In view of Brown's teaching, it would have been obvious to one with ordinary skill in the art at the time of invention to combine the Prior Art with Brown and wash the liberated oil to produce an oil phase substantially free of emulsion and solids.

7. In conclusion, the claimed invention is *prima facie* obvious over combined teachings of the Prior Art, Canadian Patent and Brown.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PREM C. SINGH whose telephone number is (571)272-6381. The examiner can normally be reached on 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PS 081311

/PREM C SINGH/  
Primary Examiner, Art Unit 1771